

AMENDMENTS TO THE CLAIMS

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims will replace all prior versions and listings of claims in the application:

1-49. (Canceled)

50. (Previously Presented) A method of treating, preventing or ameliorating a hepatitis B virus (HBV) infection in a subject, comprising

administering to the subject-nucleic acid molecules of 8 to 100 nucleotides in length containing at least one unmethylated CpG dinucleotide, wherein the at least one unmethylated CpG dinucleotide is a non-palindromic CpG motif, wherein an antigen of the virus is not administered in conjunction with administration of the nucleic acid molecules, and wherein the nucleic acid molecules are administered in an amount sufficient to treat, prevent or ameliorate the HBV infection in the subject.

51. (Canceled).

52. (Previously Presented) The method of claim 51, wherein the nucleic acid molecules comprise the sequence 5'-purine, purine, C, G, pyrimidine, pyrimidine, C, G-3'.

53. (Previously Presented) The method of claim 52, wherein the nucleic acid molecules comprise a sequence selected from the group consisting of 5'-AACGTT-3', and 5'-GACGTT-3'.

54. (Canceled).

55. (Previously Presented) The method of claim 50, wherein the subject is a mammal.

56. (Previously Presented) The method of claim 50, wherein administration is intravenous or subcutaneous.

57. (Previously Presented) A method of treating, preventing or ameliorating a hepatitis virus (HBV) infection in a subject, comprising
administering to the subject nucleic acid molecules of 8 to 100 nucleotides in length containing at least one unmethylated CpG dinucleotide, wherein the at least one unmethylated CpG dinucleotide is a non-palindromic CpG motif, wherein the nucleic acid molecules are free of HBV antigen, and wherein the nucleic acid molecules are administered in an amount sufficient to treat, prevent or ameliorate the HBV infection in the subject.

58. (Canceled).

59. (Currently Amended) The method of claim 57 ~~58~~, wherein the nucleic acid molecules comprise the sequence 5'-purine, purine, C, G, pyrimidine, pyrimidine, C, G-3'.

60. (Previously Presented) The method of claim 59, wherein the nucleic acid molecules comprise a sequence selected from the group consisting of 5'-AACGTT3', and 5'-GACGTT3'.

61. (Canceled).

62. (Previously Presented) The method of claim 57, wherein the subject is a mammal.

63. (Previously Presented) The method of claim 57, wherein administration is intravenous or subcutaneous.

64. (Previously Presented) A method of reducing viremia in an individual infected with hepatitis B virus (HBV), comprising administering a polynucleotide of 8 to 100 nucleotides in length comprising an immunostimulatory sequence (ISS) to said individual, wherein the ISS comprises the

sequence 5'-C, G-3', wherein the 5'-C, G-3 is a non-palindromic CpG motif, wherein an HBV antigen is not administered in conjunction with administration of said-polynucleotide, and wherein said polynucleotide is administered in an amount sufficient to reduce HBV viremia.

65. (Canceled).

66. (Previously Presented) The method of claim 64, wherein the nucleic acid molecules comprise the sequence 5'-purine, purine, C, G, pyrimidine, pyrimidine, C, G-3'.

67. (Previously Presented) The method of claim 66, wherein the nucleic acid molecules comprise a sequence selected from the group consisting of 5'-AACGTT3', and 5'-GACGTT3'.

68. (Previously Presented) The method of claim 64, wherein the individual is a mammal.

69. (Previously Presented) The method of claim 64, wherein administration is intravenous or subcutaneous.

70. (Previously Presented) A method of reducing blood levels of a hepatitis virus antigen in an individual infected with hepatitis B virus (HBV), comprising administering a polynucleotide of 8 to 100 nucleotides in length comprising an immunostimulatory sequence (ISS) to said individual, wherein the ISS comprises the sequence 5'-C, G-3', wherein the 5'-C, G-3 is a non-palindromic CpG motif, wherein an HBV antigen is not administered in conjunction with administration of said polynucleotide, and wherein said polynucleotide is administered in an amount sufficient to reduce blood levels of a hepatitis virus antigen.

71. (Canceled).

72. (Previously Presented) The method of claim 70, wherein the ISS comprises the sequence 5'-purine, purine, C, G, pyrimidine, pyrimidine, C, G-3'.

73. (Previously Presented) The method of claim 72, wherein the ISS comprises a sequence selected from the group consisting of 5'-AACGTT3' and 5'-GACGTT3'.
74. (Previously Presented) The method of claim 70, wherein the individual is a mammal.
75. (Previously Presented) The method of claim 70, wherein administration is intravenous or subcutaneous.
76. (Previously Presented) The method of claim 67, wherein the hepatitis virus antigen is HBsAg.
77. (Previously Presented) A method of treating, preventing or ameliorating a hepatitis B virus (HBV) infection in a subject, comprising
administering to the subject a nucleic acid molecule of 8 to 100 nucleotides in length containing at least one unmethylated CpG dinucleotide, wherein the nucleic acid molecule has a phosphate backbone modification, wherein an antigen of the virus is not administered in conjunction with administration of the nucleic acid molecule, and wherein the nucleic acid molecule is administered in an amount sufficient to treat, prevent or ameliorate the HBV infection in the subject.
78. (Previously Presented) The method of claim 77, wherein the nucleic acid molecule comprises the sequence 5'-purine, purine, C, G, pyrimidine, pyrimidine, C, G-3'.
79. (Previously Presented) The method of claim 78, wherein the nucleic acid molecule comprises a sequence selected from the group consisting of 5'-AACGTT-3', and 5'-GACGTT-3'.
80. (Previously Presented) The method of claim 77, wherein the subject is a mammal.

81. (Previously Presented) The method of claim 77, wherein administration is intravenous or subcutaneous.

82. (Previously Presented) A method of preventing hepatitis B virus (HBV) infection in a subject, comprising

administering to the subject a nucleic acid molecule of 8 to 100 nucleotides in length containing at least one unmethylated CpG dinucleotide, wherein an antigen of the virus is not administered in conjunction with administration of the nucleic acid molecule, and wherein the nucleic acid molecule is administered in an amount sufficient to prevent the HBV infection in the subject.

83. (Previously Presented) The method of claim 82, wherein the nucleic acid molecule comprises the sequence 5'-purine, purine, C, G, pyrimidine, pyrimidine, C, G-3'.

84. (Previously Presented) The method of claim 83, wherein the nucleic acid molecule comprises a sequence selected from the group consisting of 5'-AACGTT-3', and 5'-GACGTT-3'.

85. (Previously Presented) The method of claim 82, wherein the subject is a mammal.

86. (Previously Presented) The method of claim 82, wherein administration is intravenous or subcutaneous.

87-96. (Canceled).

97. (New) The method of claim 50, wherein the nucleic acid containing at least one unmethylated CpG dinucleotide has a sequence including at least the following formula:



wherein C and G are unmethylated, wherein X_1X_2 and X_3X_4 are nucleotides,

98. (New) The method of claim 64, wherein the nucleic acid containing at least one unmethylated CpG dinucleotide has a sequence including at least the following formula:



wherein C and G are unmethylated, wherein X_1X_2 and X_3X_4 are nucleotides,

99. (New) The method of claim 70, wherein the nucleic acid containing at least one unmethylated CpG dinucleotide has a sequence including at least the following formula:



wherein C and G are unmethylated, wherein X_1X_2 and X_3X_4 are nucleotides,

100. (New) The method of claim 50, wherein the nucleic acid containing at least one unmethylated CpG dinucleotide has a phosphorothioate internucleotide linkage.

101. (New) The method of claim 64, wherein the nucleic acid containing at least one unmethylated CpG dinucleotide has a phosphorothioate internucleotide linkage.

102. (New) The method of claim 70, wherein the nucleic acid containing at least one unmethylated CpG dinucleotide has a phosphorothioate internucleotide linkage.